Answers to DISAD.

Mars Fails

Terraforming mars will take centuries

Lamb '1, David Lamb, Philosophy and Bioethics at the University of Birmingham, "The Search for Extraterrestrial Intelligence: A Philosophical Inquiry", pp. 114-115

The second phase is estimated to take a great deal longer, about 100,000 years (Naclis, 199-'1), and would involve the production of oxygen of sufficient quantity for " humans to breath<:> on the planet. Thus, when the planet has warmed, certain organisms ... for example, the blue-green algae found on Earth could he planted. At present Martian soil lacks oxygen, nitrogen and phosphorous. But the planting of lichens and blue-green algae, if successful, would help to produce oxygen. Once underway, genetically altered plants and self- replicating micro-organisms could be added in order to speed up the process. As the atmosphere becomes thicker the planet would become warmed. Carbon dioxide, nitrogen and water would seep from the crust. Lakes and small oceans would appear. Rocks could be mined for iron oxide which could be heated to give off oxygen. Within several decades there might be soil. **But the whole operation could take many centuries**. For example, **lichens have a very slow growth rate and are not suitable for fast oxygen production. If blue-green algae covered one quarter 'of the Martian surface it would take about 7,000 years to produce 5mb of oxygen; the minimum for human breathing at this rate would take 140,000 years** (Smith, 1989: 124). The best solution to this problem lies in further developments in genetically altered plants which could speed up oxygen production. <>

Mars colonies will be wiped out by space rocks

Ian **O'Neill,** 6/13, **'11**, "Mars Hit by Cosmic Buckshot, Again," Discovery, http://news.discovery.com/space/mars-hit-by-cosmic-buckshot-again-110613.html, Accessed 6/30/2014

The Martian atmosphere is the Red Planet's blessing and curse. The blessing is that the Martian atmosphere is so tenuous it allows relatively small lumps of space rock to turn into meteorites, peppering its surface with fascinating impact craters for our satellites to study from orbit. As fun as this may be for us remote observers, **should Mars colonization be in our future, we'll be cursing this fact if our habitats get punctured -- or destroyed -- by cosmic buckshot.** Fortunately for us, **Earth has a hefty atmosphere**, some **100 times thicker than Mars', ensuring any renegade space rocks are tortured by the extreme heating of atmospheric entry** -- only the largest, toughest rocks survive the burn.

COLONIZING MARS WILL NOT SAVE HUMANITY

Lynda **Williams**, Spring 20**10**, Physics Instructor, Santa Rosa Junior College, "Irrational Dreams of Space Colonization," Peace Review, a Journal of Social Justice, 22.1, http://www.scientainment.com/lwilliams_ peacereview.pdf

According to scientific theory, the destruction of Earth is a certainty. About five billion years from now, when our sun exhausts its nuclear fuel, it will expand in size and envelope the inner planets, including the Earth, and burn them into oblivion. So yes, we are doomed, but we have 5 billion years, plus or minus a few hundred million, to plan our extraterrestrial escape. **The need to colonize** the Moon or **Mars to guarantee our survival** based on this fact **is not pressing.** There are also real risks due to collisions with asteroids and comets, though **none are of immediate threat and do not necessitate extraterrestrial colonization.** There are many Earth-based technological strategies that can be developed in time to mediate such astronomical threats such as gravitational tugboats that drag the objects out of range. The solar system could also potentially be exposed to galactic sources of high-energy gamma ray bursts that could fry all life on Earth, but any Moon or Mars base would face a similar fate. Thus, Moon or **Mars human based colonies would not protect us from any of these astronomical threats in the near future.**

Mars Offense—Space Diseases

Mars exploration causes space diseases, wiping out life on earth

Leslie **Mullen '3,** Aug 25, "Alien Infection," Astrobiology Magazine, http://www.astrobio.net/news/modules.php?op=modload&name=News&file=article&sid=570]

Chris Chyba, who holds the Carl Sagan Chair for the Study of Life in the Universe at the SETI Institute, says **there are two types of potential alien pathogens: toxic and infectious.** Toxic pathogens act as a poison on other organisms. Infectious pathogens are viruses or bacteria that are passed between organisms, causing sickness. Some viruses and microbes rely on specific biological systems in order to replicate and infect their host, so not all pathogens affect all organisms the same way. Chicken farmers, for instance, can remain untouched by a disease that decimates their flocks. It could be that a martian microbe would enter the human body, but is rendered harmless because it is incompatible with human physiology. **"After living in the dirt of Mars, a pathogen could see our bodies as a comparable host**; they could treat us 'like dirt,'" says John Rummel, NASA's Planetary Protection Officer. "But, to quote Donald Rumsfeld, we're dealing with the unknown unknowns. It could be that even if the microbes lived inside us, they wouldn't do anything, it would just be this lump living inside you." **The conditions on Mars are much different than those in the human body, so an inert pathogen seems the most likely scenario -- especially since any life on Mars would have evolved without humans being present.** Co-evolution is why some pathogens only affect certain organisms. Infectious pathogens evolve based on the reactions of their hosts. As the host develops defenses against a predatory pathogen, the pathogen has to devise new means of sustaining itself within the host (or risk its own extinction). Some toxins also developed through co-evolution. As predatory organisms seek food, their prey develop ever more sophisticated means to escape being eaten. Many organisms developed specially targeted toxins as part of this evolutionary arms battle. Rummel says that humans have evolved a complex defense system to prevent us from getting sick from a whole host of disease and pathogens. But non-specific microbes - where human physiology did not influence their evolution - may evade our defense mechanisms. The best way to understand the spread of potential alien pathogens is to examine the spread of such non-specific pathogens on Earth. One example of a non-specific toxic pathogen is cyanobacteria that produce hepatotoxins (toxins affecting the liver) and neurotoxins. According to Chyba, cyanobacteria living in lakes on the alpine pastures of Switzerland have been implicated in a hundred cattle poisonings over the past 25 years. Chyba says the cyanobacteria most likely did not develop their toxins in order to escape predation from cows (or to kill the cows in order to eat them!). "Rather, the susceptibility of cattle to these toxins seems simply to be an unfortunate coincidence of a toxin working across a large evolutionary distance," Chyba writes. An example of an infectious pathogen working across large evolutionary distances is the bacterium Serratia marcescens. It is found in a variety of animal species, and also can be found free-living in water and soil. Its transmission from human sewage has resulted in the decimation of Caribbean elkhorn coral. "The distance between humans and corals emphasizes the possibility that certain **organisms may prove pathogenic across a wide evolutionary divide,**" Chyba writes. Of course, the evolutionary divide between humans and coral would not be as wide a gulf as between any martian organisms and human beings. Yet one theory for the origin of life on Earth is that it was transferred here from Mars by meteorites. This variant of the "Panspermia" theory suggests that life on Earth and any life on Mars might be closely related. If Mars and Earth share the basis for life, this life would presumably have evolved well beyond the original form. Such a large evolutionary divide could provide protection from infection. But it could also mean that **if infection does occur, it might be related closely enough to some Earth life to blaze through that population unchecked.** Human infection is not the only concern of planetary protection. Life on Earth forms an interconnected, highly dependent web, so **a pathogen affecting any life on Earth could have serious repercussions for the health and environment of our planet.**

Internal link to Colonization Bad

Mars allows for an increase interest in science and pushes us to the universe beyond. Zubrin, President of the Mars Society '11

Masters degree in Aeronautics and Astronautics and a Ph.D. in Nuclear Engineering from the University of Washington. Viewed as a respected author and a renown expert on Mars.The Case for Mars: The Plan to Settle the Red Planet and Why We Must. 28, June 2011. Source: I09 Found: 29, June 2011 Medium though http://io9.com/5812255/the-case-for-mars-the-plan-to-settle-the-red-planet-and-why-we-must?tag=books.

There are real and vital reasons why we should venture to **Mars.** It **is the key to unlocking the secret of life in the universe. It** is the challenge to adventure that **will inspire millions of young people to enter science and engineering**, and whose acceptance will reaffirm the nature of our society as a nation of pioneers. **It is the door to an open future, a new frontier** on a new world, a planet that can be settled, **the beginning of humanity's career as a spacefaring species**, with no limits to its resources or aspirations**, as it continues to push outward into the infinite universe beyond.**

Colonization Bad – Extinction Ans.

COLONIZATION ONLY SPEEDS UP EARTH DECLINE, CAUSING EXTINCTION

Williams, '10 Lynda Williams, Physics Instructor, Santa Rosa Junior College, "Irrational Dreams of Space Colonization", Peace Review, a Journal of Social Justice, The New Arms Race in Outer Space (22.1, Spring 2010), http://www.scientainment.com/lwilliams_peacereview.pdf, **Life on Earth is more** urgently **threatened by the destruction of the biosphere and its life sustaining habitat due environmental catastrophes such as climate change,** ocean acidification, disruption of the food chain, **bio-warfare, nuclear war, nuclear winter, and myriads of other** man- made **doomsday prophesies. If we accept these threats as inevitabilities** on par with real astronomical dangers and **divert our natural, intellectual, political and technological resources from solving these problems into escaping them, will we playing into a self- fulfilling prophesy of our own planetary doom? Seeking space based solutions to our Earthly problems may** indeed **exacerbate the planetary threats we face.** This is the core of the ethical dilemma posed by space colonization: should we put our recourses and bets on developing human colonies on other worlds to survive natural and man-made catastrophes or should we focus all of our energies on solving the problems that create these threats on Earth?

COLONIES WON'T SOLVE EXTINCTION—WE CAN'T GET ENOUGH PEOPLE OFF THE PLANET

Nikos **Prantzos, 2000,** nuclear astrophysicist in the Institut d'Astrophysique de Paris, France, Our Cosmic Future, p. 84

Not only science fiction readers, but also quite a few **scientists are dreaming of ways to bring life to other planets in the Solar System**, and in particular to Mars. **Their motivation is certainly not a solution to overpopulation problems on Earth**. Even though Mars has an area equal to all the land area on Earth, **it would be impossible to transport any significant fraction of the population. In order to send a hundred million people** (which **constitutes a negligible fraction of the present population) , in** let us say **one century, three thousand departures would have to be organised each day.** Therefore, the fascination for terraforming Mars is more closely related to the new frontier it represents. Conquest of such a frontier would help our civilisation to release its creative potential and find new vitality. Some have compared the situation with the American frontier, several centuries ago.